

MUTUAL AID

PROVIDING BETTER FIRE AND RESCUE PROTECTION

FOR CITIZENS

STRATEGIC MANAGEMENT OF CHANGE

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Abstract

The city of Lincoln and the volunteer fire departments in Lancaster County have had an ongoing mutual aid agreement that has worked effectively over many years. The City of Lincoln is growing and annexing areas for which the volunteer departments have been providing fire and rescue service. Many times the Lincoln Fire Department could have been dispatched to emergencies in these rural areas adjoining the city limits and could have responded faster and perhaps have made a difference in the outcomes of the incidents.

The purpose of this research project was to provide the Lincoln Fire Department and the Lancaster County Mutual Aid members with alternatives as to who should respond to the rural areas that are adjacent to the Lincoln city limits.

Historical and descriptive methods were used to answer the following questions:

1. What factors affect the response of the city of Lincoln's fire department to the areas that border the city limits?
2. What factors affect the response of the volunteer fire departments to the areas that border the city limits of Lincoln?

3. How are other fire departments addressing the issues of mutual aid response into the areas that are next to their city limits?

Historical research material was assimilated with current information gathered from interviews that were conducted with four individuals who had experience developing mutual aid agreements or set up mutual aid response in their jurisdictions. They were asked: "Are there mutual aid agreements in the areas where you have worked, what are the problems facing fire departments and volunteer fire departments in the areas they are expected to provide emergency service to, what can make mutual aid response better in your entity, and are there alternatives in the mutual aid system that could greatly benefit the citizens they are to protect."

Time-distance charts were developed for responses from the volunteer fire stations to the rural areas they protect and also from the Lincoln fire stations that are adjacent to the rural areas.

The time-distance charts showed that the Lincoln Fire Department could respond faster and cover more area in the rural areas near the city limits of Lincoln. The problems that affected Lincoln's response are the training and response commitment in the city itself, the lack of capabilities for providing a sufficient water supply in the rural area, and the mentality of Lincoln taxpayers that the rural areas do not provide tax money to fund the fire department so it should not provide protection for

them. The problems that affected volunteer fire response are employers not allowing people to respond to the emergency when they are working, not retaining volunteers because of an increased time commitment due to a larger number of responses, more training, and getting people to the scene of the emergency in a timely fashion.

Alternatives presented to assist mutual aid response were designating certain time frames for units to begin their response after dispatch before sending another unit if the first unit does not acknowledge responding, automatic aid where more than one entity responds, mutual response zones where more than one entity responds, and inter-local agreements where one department provides career people who respond to either the city or the rural area in case of an emergency.

The research recommended that Lincoln fire management meet with the Lancaster County Mutual Aid members and update the existing mutual aid response to better protect the citizens in the rural areas surrounding the city of Lincoln. The research suggested four alternatives be considered by the mutual aid members:

1. Conduct joint training and planning sessions between members be facilitated to enhance cooperation between all members of the organization.
2. Identify mutual response zones be identified in the rural area that automatically gets aid and emergency response from more than one entity.

3. Make inter-local agreements that would allow Lincoln Fire to put career firefighters into volunteer stations and then have them provide emergency service for both the city and the rural area.
4. Study alternatives to address the problems of water supply in the rural response areas and the radio communications problem that exists between Lincoln Fire and the Lancaster County rural fire departments.
5. Develop a policy of adopting one or more of the above options.



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INTRODUCTION

The City of Lincoln and the volunteer fire departments in Lancaster County have had an ongoing mutual aid agreement that has worked effectively. Any time the members have needed either fire or rescue assistance, they ask for help and it is provided by other members of the association. The City of Lincoln is surrounded by five volunteer fire departments that are adjacent to the city limits. The City of Lincoln has been annexing property in the areas where these volunteer departments have provided fire and rescue services. The problem is that many times the Lincoln Fire Department could have provided fire and rescue service to these areas faster than the volunteer departments in the area. The Lincoln Fire Department could also have responded than the volunteer departments that were initially dispatched in many vehicular accidents. All emergency providers know the importance of time in reducing danger and saving lives.

The purpose of this research paper is to provide the City of Lincoln and the members of the Lancaster County Mutual Aid Association with alternatives as to who should respond in the areas that are right next to the Lincoln city limits. Historical and descriptive research methods will be used to answer the following questions:

What affects the response of the city of Lincoln's fire department to the areas that border the city limits of Lincoln?

What affects the response of the volunteer fire departments to the areas that border the city limits of Lincoln?

How are other city fire departments addressing the issues of mutual aid response in the areas that are next to the city's boundaries?

Background And Significance

The Lincoln Fire Department is a paid professional fire organization that provides fire, rescue, and EMS protection for the approximately seventy square miles that make up Lincoln, Nebraska. The fire department consists of 14 paramedic engine companies, 4 truck companies, a hazardous materials unit, and 250 firefighters who are housed in 14 fire stations located strategically around the city (see Appendix A). The department tries to maintain a response average of three minutes to all emergencies within the city limits.

The City of Lincoln initiated a program of paramedic engine companies in 1997. Each fire engine will have a certified paramedic who will provide Advanced Life Support capabilities to each company that is able to arrive on the scene of any emergency. This will greatly enhance the capabilities of providing medical care to all.

The City of Lincoln continues to annex land on its outer boundaries. In the early 80's minimal annexation took place with a lot of development in the vacant areas within the city. From about 1989 on, there has been a tremendous increase in the amount of land that has been annexed to the city (see Appendix B). Since 1988, the city has expanded by about 10 square miles. As the city continues to grow the fire department is expected to expand into the newly annexed areas.

Lincoln is located in the middle of Lancaster County and is its largest city with a population of approximately 210,000. The rest of Lancaster County is basically agricultural with approximately 15 small communities surrounding Lincoln. There are also numerous acreages surrounding Lincoln in the rural areas. Many people commute to Lincoln to work in the city but reside either in the small communities or on acreages. As the city grows, these acreages and some of these communities may be annexed to the city.

Lincoln and these small communities have entered into the Lancaster County Firefighters Association Mutual Aid Agreement (see Appendix C). Each member of this association agrees to assist each other with manpower and the use of equipment in the case of a fire, medical, or rescue emergency. Each member agrees to assume all costs and liability for their actions at any emergency if requested to assist another member. This agreement has been in effect since 1965.

There are five rural volunteer fire departments that touch Lincoln's boundaries (see Appendix C). A query was completed as to how many emergency responses were required in the five areas that the volunteer departments serve: Waverly, Raymond, Malcolm, Southwest Rural, and Southeast Rural. The average number of responses for the last five years was approximately 600 per year.

The next question was how many of the 600 responses required assistance from the Lincoln Fire Department. Three fire stations on the edge of Lincoln respond the most frequently to mutual aid requests. The information below is from the daily logs of these stations covering responses from January 1, 1996 to April 20th, 1998.

Station 14, in the northwest corner of the city, listed the following in its mutual aid log:

07-23-97	Highway 34 and Fletcher Avenue	injury accident
08-04-97	Highway 34 and Fletcher Avenue	injury accident
08-20-97	Interstate 80, milemarker 405	injury accident
09-11-97	Highway 34 and Northwest 27th	injury accident - 1 killed
12-08-97	921 Fletcher Avenue	medical emergency
01-22-98	Interstate 80, milemarker 404	injury accident

Station 12, in the eastern part of the city, included these responses in its mutual aid log:

06-08-96	98th and Pioneers	injury accident - 2 killed
02-03-97	89th and O street	injury accident
03-26-97	98th and Adams	grass fire
10-17-97	84th and Old Cheney	injury accident
12-12-97	98th and Pine Lake	injury accident
12-23-97	84th and Old Cheney	injury accident

Station 6, in the southeastern part of the city, recorded the following in its mutual aid log:

12-12-97	98th and Pine Lake	injury accident
04-15-98	70th and Pine Lake	injury accident - 3 killed

In all these mutual aid responses, the Lincoln Fire Department's units were not called until someone arrived from the responding volunteer departments and requested Lincoln's assistance. All the addresses in the preceding list were within three miles of the nearest Lincoln fire station.

If Lincoln units had initially been dispatched to the above addresses, it would have taken from three to five minutes for the units to arrive on location. In the response from Station 12 on 06-08-96, Lincoln firefighters were dispatched approximately 12 minutes after the volunteer departments were dispatched. The rural fire station that was originally dispatched to the incident was at a training session on the opposite side of Lincoln and requested another rural station be dispatched to the incident before Lincoln was requested. In the response from Station 6 on 04-15-98, Lincoln firefighters were dispatched approximately 8 minutes after the initial volunteer dispatch. If Lincoln units had been dispatched initially, would that have made a difference in the number of deaths?

In general, the faster care is provided, the better chance the victim in an incident has in surviving. It is the inherent nature of all firefighters to want to help people and

provide the best assistance. When they are involved in incidents and feel that they could have changed the outcome, they question what could have been done differently.

It is a basic function of the fire department to evaluate every response to see how firefighters could make the response better and maybe change the outcome.

Firefighters feel badly if they feel they could have made a difference in the outcome of any incident.

This research project relates to the analysis phase of the change management model of the National Fire Academy's Strategic Management of Change course of the Executive Fire Officer Program.

Literature Review

Bryan, Rasmussen, and Vogltance (February 1984) states that small-town and rural volunteer fire departments are finding themselves faced with the problems of big-city fire departments. Now the only way that big-city problems can be met is with big-city apparatus and manpower. And how is the small-town or rural fire department going to do this? The only way is through utilizing mutual aid with surrounding jurisdictions.

Carter (May 1995) describes mutual aid in its finest form as people helping people to get the job of fire, EMS, and rescue protection completed in their jurisdiction. Fire departments have been opting for mutual aid agreements that allow sharing resources so that citizens will receive the aid and protection that they expect.

Hatcher (May 1990) states that no longer can the fire chief of today handle every emergency efficiently and effectively without relying on the assistance from surrounding jurisdictions or other agencies. He also states that it is up to the fire service leaders of today to take the "bull by the horns". They need to open lines of communication and take a pro-active approach to providing service to the community. The departments, and most importantly, the taxpayers and the receivers of the service will benefit.

One of the most sought after forms of mutual aid is in the area of hazardous materials. Robert Aldrich (December 1989) states that the management of hazardous material spills is not the elected responsibility for most fire departments. Because of the lack of other agencies capable of mitigating haz-mat threats on an emergency basis, it is a mandate. Not only are haz-mat incidents difficult to manage, but equipment, training curriculum, and standard practices are unusually complex for the fire service. Usually the largest fire department is the one to create a hazardous materials team and provide its expertise and resources to the surrounding communities and volunteer fire departments.

Even though fire departments can be more efficient and effective by participation in mutual aid agreements, problems can exist between members. When a larger entity starts to annex areas, the small volunteer department loses some of its tax base from which it accumulates money for its successful operations. Volunteer departments have to hold fund raisers for money to buy much-needed equipment.

Volunteer departments sometimes also feel territorial: "I will respond and take care of my area without having to call others." (Mike Dekalb, personal interview, April 16, 1998). Haase (December 1991) states that in the past many fire departments were reluctant to request aid from neighboring departments because it meant that they were weak, ill-equipped, or just couldn't handle the emergency. Haase states that each volunteer fire department must commit itself to the betterment of the whole

organization. The organization cannot run with one or two of the mutual aid members, but it must be a joint effort by all. Granito (March/April 1991) relates that the best-designed plans can fall apart when people who promise to participate do not live up to their agreements.

Many volunteer fire departments are having a frustrating time keeping existing members and recruiting new members. Employers are more reluctant to allow people to respond to emergencies during working hours because it cuts into the productivity. Also, with the increased number of calls at all times of the day and night, people are becoming burned out and are not as interested in being volunteers as before. More specialized training requirements and governmental mandates require a great of time from the person who does not get paid. This increased amount of time required really affects family life. (William Weston, personal interview, December 13, 1997).

In the last two decades Granito (March/April 1991) has seen an emergence of a consumer-oriented society. People want and demand good service. All want their money's worth from all the governmental agencies. Taxes continue to increase, so people either want the best service and protection or else want the service and protection eliminated.

In addition, many of the volunteer departments do not have the resources to handle all emergencies. Some of the big acreages in the rural areas have large

houses and buildings that can tax any rural fire department. An adequate water supply is also a very large problem partly because fire and sprinkler codes are hard to enforce in a rural area. (Eric Rasmussen, personal interview, March 5, 1998).

Fire departments evaluated, updated, and changed many mutual aid agreements to address needs and problems. The mutual aid agreement in Bellows Falls Vermont calls for the closest unit to be dispatched to the emergency. The unit is given 2 minutes to respond or clear. If two minutes go by and no one responds, the next volunteer department is dispatched and given two minutes to respond. If no one responds, the next nearest department is dispatched and so on until one of the departments responds. The problem is that sometimes the assistance is coming from a long distance. (William Weston, personal interview, December 13, 1997).

Bill Madison studied mutual aid response in Fairfax County, Virginia. The fire department identified zones where two or more entities were dispatched to the same emergency. The first unit on the scene set up command and handled the situation or worked with the other entity. Career and volunteer departments cooperated on many of these responses. (Bill Madison, personal interview, April 23, 1998).

Purchase (May 1996) states that progressive fire service leaders have taken the mutual aid concept and converted it into automatic aid agreements. These agreements can include both career and volunteer departments. Cowardin states, "A

career department can generally provide a faster response, while volunteer departments can generally provide more personnel". (Cowardin, December 1993, p7).

Mutual aid agreements can be enhanced and kept strong by addressing certain areas. Haase (August 1990) states that a good communications system can make or break a mutual aid incident. Granito (March/April 1991) implies that unless joint planning of operations has occurred, it is unlikely that full cooperation will be obtained at the incident. Coleman (March 1992) states that training sessions with mutual aid companies is important. Familiarity with each other's apparatus and operating procedures, as well as a comfort level between personnel, are important ingredients. These items will create better cooperation among entities, which will result in better service to the citizens.

Better service is exactly what the citizens want. Timothy Lallathin (September 1990) states that public opinion is clear. Those who need the emergency services do not care about the color of the emergency vehicle, who owns it, or where it is from. What matters is that someone comes and delivers the appropriate service. We, as firefighters, must provide what is expected from us.

Procedures

Research Methodology

The desired outcome of this research was to collect available information to be used by the City of Lincoln and the Lancaster County Mutual Aid Association to provide better emergency response to the areas near the Lincoln city limits. The research was historical in that literature was reviewed concerning mutual aid, effects on city and rural fire departments, and alternatives that other mutual aid organizations use to provide emergency response for their citizens.

Research was conducted at the Learning Resource Center at the National Fire Academy at Emmitsburg, Maryland. Research was also conducted at the University of Nebraska Library in Lincoln, the Lincoln City Library System, and the Library at the Southeast Community College Campus in Lincoln. Previous applied research papers, journals, periodicals, and books were reviewed to compile valuable historic information.

Research was descriptive in that the historical research was combined with information gathered from other fire departments about their existing mutual aid agreements. Interviews were conducted with four individuals who have created mutual aid agreements and have been instrumental in making mutual aid better in their

localities. Interviewed were Chief William Weston, of Bellows Falls, Vermont, Eric Rasmussen, rural fire training officer for the Nebraska Forest Service, Deputy Chief Bill Madison, EMS Director of the Lincoln Fire Department, who was an EMS Captain with the Fairfax County Virginia Fire Department, and Lincoln - Lancaster County Planner Mike Dekalb.

The following questions were asked of these individuals:

1. Are there mutual aid agreements in the areas that you work or have worked?
2. What are some problems that face the fire departments and the volunteer departments in the areas that they are expected to protect and respond to?
3. What can make the mutual aid response better in your entity?
4. Are there any types of alternative mutual aid responses that can be beneficial to the citizens that they are to protect?

Information concerning mutual aid and mutual aid responses was also taken from minutes of the deputy chiefs' meeting that are held monthly and also from discussions between the deputy chiefs.

Time and distance charts were developed for the volunteer fire departments that surround the City of Lincoln and for the City of Lincoln fire stations that are on the perimeter of the city (Appendix C). The charts show the distances fire stations could respond out of its jurisdictional boundaries.

Limitations

The information gathered from the interviews may not be a complete representation of all the different alternatives of mutual aid and how different entities might respond to assist each other.

Results

Research Question #1

The time-distance studies concerning the areas adjacent to the Lincoln city limits and discussions with the deputy chiefs, provide details concerning the responses to the areas outside Lincoln's city limits. The time-distance studies show that firefighters from the nearest Lincoln fire station can respond faster into the areas adjoining the city than can the volunteer firefighters from the rural areas. Given the same amount of time the Lincoln firefighters can also respond farther into rural areas than the nearest rural fire department. The asset of having personnel on duty at all times allows Lincoln firefighters to respond immediately with no time delay.

Since the data shows an average number of 600 responses per year in the rural fire areas adjacent the city limits, it is very feasible for the city to handle that number of responses without great detriment to the citizens of the city.

The city and the rural departments both use the same 911 and dispatch center for their police, fire and rescue services in Lancaster county. Therefore, there would be no additional cost to dispatch the city's units to the areas outside the city limits.

The problems that could affect the response of Lincoln's Fire Department would be the increased number of responses and the training that the department is facing. Having the firefighters involved in these activities would increase response times if dispatchers would have to send someone else instead of the people closest to the emergency.

Another example of the problems would be the lack of water for fire emergencies. The city has an outstanding water system with fire hydrants strategically located on all the streets. In the rural areas, the firefighters would have to provide their own water source.

Communications would be a concern between the city and rural departments. Each department has its own radio system and trunk lines, and the cost to get both under the same radio frequency could run into the hundreds of thousands of dollars.

Another problem is the mentality that the city of Lincoln taxpayers pay for the protection by their fire department. People feel rural areas do not add any money to the city tax base and therefore they would be getting the service for free. This thinking could cause people to oppose any assistance to the rural areas. However, the city fire department already provides emergency assistance to everyone in the city, so often it provides assistance to the people who are visiting, working, or spending money in our city, but who do not reside here.

Research Question #2

The volunteer departments are able to provide a large number of people at any emergency. The problem is getting the people to the scene of the emergency. The interviews and research show up problems of getting people to respond. Many times the emergencies happen when the volunteers are going to work, and, by the time they can respond, important time has elapsed. If there are people available at the volunteer station, response time can be lessened. With the great distances traveled and the amount of precious time lost getting people and equipment to respond, the rural departments are already at a disadvantage.

Since the economy of the country is very good and unemployment is now at an all-time low, employers are very reluctant to allow their people to leave work and assist at an emergency. Employers want to get a good day's work for a good day's wages and expect the people to work without interruption. Many times the people who volunteer for the rural departments work inside the city and this fact affects the response time for calls in their rural areas. On the other hand, many employers do let their personnel respond if an emergency arises and whole heartedly support their volunteer status.

Another problem revealed by the research was getting enough personnel to be in the volunteer departments. People are just not willing to give up their family and personal lives any more. Their time is precious. Another problem that is becoming more evident is burn out. Because the number of runs is increasing at all times of the day, people are getting tired of responding just for the love of it. They are getting worn out. Specialized training and governmental mandates have increased the workload for the volunteers to stay proficient, but they do not get paid for this training.

Also, territorialism greatly affects the response of the rural departments. Some of the people still want to cover their own area without anyone else's help. They will try to do everything by themselves because if they call for help, it shows they are weak, ill equipped, and can't handle the situation by themselves.

Another reason that responses are affected is that as the city is expanding, it is annexing more of the volunteer territory. These rural departments are having to relocate so they can respond to their areas more efficiently. Also, losing response area means they are losing their tax base so it is harder to come up with the money to buy equipment and do the things that they need to do to provide better service.

Research Question 3.

The research interviews produced a few alternatives. The first one is based on elapsed time after a dispatch. After a dispatch, a fire department could be given a certain amount of time to acknowledge it and respond. If it did not respond after one and a half or two minutes, then the next nearest department would be dispatched and so on until someone did respond. This type of dispatch could greatly increase the amount of time that it would take for someone to arrive, but at least someone would be responding to the incident.

Another alternative is automatic aid. Any time an emergency occurred and dispatchers sent firefighters, they would automatically send more than one unit to the incident. The first one arriving on the scene could either cancel other departments if they are not needed or let them proceed if they are needed.

Another alternative is mutual response zones. Areas with a large number of responses would be designated as "mutual response zones." When an emergency arose in a mutual zone, units from more than one jurisdiction would be dispatched. The first on the scene could either cancel the other responding department if it were not needed or let it assist with the emergency.

Another alternative that came from one of the interviews was developing an inter-local agreement with the rural departments where the city would provide career firefighters in the volunteer fire station, and the unit could respond to a city emergency or a rural emergency. In this way there would be less response time to the emergency and better service to the citizens of both entities.

Discussion

The study results and the findings of others in the research are very similar. The time-distance studies show that the career fire personnel on duty every day are able to respond faster and cover more distance than the rural departments. Cowardin (December, 1993) states that a career fire department can generally respond faster, while the volunteer departments can provide more people. If there are emergencies in the area near but outside the city limits, it would seem very reasonable that the closest possible fire department, either career or volunteer, be dispatched to provide aid in the shortest possible time.

The problems that face both the volunteer and the fire department of Lincoln in their response to the adjoining areas are the same in the study and the findings of others. Looking at the Lincoln fire mutual aid responses that have occurred, we have been able to identify the same problems that have been stated in the results of the research. Lack of water supply, apparatus being involved in other activities and not being able to respond, and the mentality that Lincoln Fire should only respond in the city limits are issues that we face and review every time that we respond outside our city limits. The problems that face the volunteer departments in Lancaster County were basically the same as others found in their research.

The study showed about 600 responses a year in the volunteer's response area

outside the city. The study showed about seventy five responses per year occurred in the volunteer's response area adjacent to the Lincoln city limits. The city fire department could easily accommodate these runs into the total yearly response of the city. The Lincoln stations that would respond into these area are the ones that have the lowest run statistics of the city. Therefore their productivity would increase and they could still handle the increased work load.

The alternatives that were presented by the study also showed some good ideas in how to develop better aid for citizens. All the alternatives seem possible and can and will work in the Lancaster County Mutual Aid Agreement. The alternatives of mutual response districts and automatic aid are two that could be implemented to better enhance the service provided by all entities involved. The idea of inter-local agreements would not only save money for the career department but would also create a faster response to the rural area.

All members of the Lancaster County Mutual Aid agreement must put all feelings aside and begin to work together of the betterment of the all citizens that they protect. Lincoln Fire will have to acknowledge that they can and will respond outside the city limits. Lincoln Fire would be able to absorb the number of runs without too much detriment to the citizens of Lincoln. It is their duty as providers to make sure that all receive the best care possible. The rural departments must also realize that if they can't respond or are delayed, they have to get someone else to help. The idea of not

asking for help has got to be eliminated. What really has to happen is that both the career and volunteer departments have to learn to work together and provide the best service for all citizens. As Timothy Lallathin (September 1990) states, those who need emergency service do not care what color the apparatus is, who owns it, or where it is from; all that matters is that someone arrives to help.

Recommendations

Reviewing the information garnered in this research, something has to be done to allow a faster and more efficient response into the rural areas that surround Lincoln's city limits.

Lincoln fire management has to take the lead and address this issue. Lincoln has to meet with the other members of the Lancaster County Mutual Aid system and convince them of the importance of changing the response into the rural areas that surround the city. Lincoln has to present information on why it is important to change the response. Alternatives must be presented so that members of the system can evaluate the feasibility of implementing some or all of them. The members of the mutual aid group must acknowledge the importance of providing the best service and protection for the people they serve.

The research suggests that four alternatives be considered by the Lancaster County Mutual Aid members:

1. Conduct joint training and planning sessions between members be facilitated to enhance cooperation between all members of the organization.

2. Identify mutual response zones in the area that automatically get aid and emergency response from more than one entity.
3. Make inter-local agreements that would allow Lincoln Fire to put career firefighters into volunteer stations and then have them provide emergency service for both the city and the rural area.
4. Study alternatives to address the problems of water supply in the rural response areas and the radio communications problem that exists between Lincoln Fire and the Lancaster County rural fire departments.
5. Develop a policy of adopting one or more of the above options.

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